

### Abstract of the Disclosure

A doped area is formed in the silicon substrate layer of a silicon-on-insulator stack including a silicon substrate, an insulator layer and an silicon active layer, by implanting a species through at least the insulator layer. In one embodiment, the silicon active layer is etched and the species are implanted in the silicon substrate through the exposed insulator layer. Thus, a doped region is formed in the silicon substrate under the areas where the silicon active layer was removed. In another embodiment after etching the silicon active layer, a dielectric layer is formed adjacent to the silicon active layer and on the insulator layer. In this embodiment, the species are implanted over the entire wafer through both the silicon active layer and the insulator layer. In both embodiments, the species are implanted before forming a gate electrode of a transistor.

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